

Cooperative Extension Service, College of Agriculture, University of Illinois,
Urbana-Champaign Campus, U.S. Department of Agriculture Cooperating.

ILLINOIS VEGETABLE FARMERS' LETTER
Letter No. 6

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URBANA, ILLINOIS

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FIELD DAYS

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

July 8 (Wednesday), 2 p.m., at the Sand Field near Kilbourne in Mason County. Varieties, herbicides, insect control, and mulching work will be featured. There will also be an irrigation tour, sponsored by the Mason County Extension Service, in conjunction with this field day. SEE MAP ATTACHED TO LETTER NO. 5 FOR DIRECTIONS TO THE FIELD STATION. July 9 (Thursday). A sweet-corn earworm meeting at the Ed Rouch Farm, near Collinsville.

Extension specialists concerned with vegetable-crop diseases, insects, weeds, and culture will be available to answer your questions and talk about current problems.

USING A GRASS PLUS BROADLEAF HERBICIDE FOR EXTENDED WEED CONTROL

Traditionally, high-value crops such as the fresh-market vegetables have been hand-weeded, with or without the use of preemergence herbicides. Because most vegetables have a high dollar value per acre, it has been possible to do this. However, many growers now find themselves with a shortage of hand labor or faced with paying wage rates that make hand-weeding uneconomical.

Within the past decade, several herbicides have been adopted for use on vegetable crops. These are excellent agents for controlling annual grasses, but not for all of the broadleaved weeds. The result has been good grass control early in the growing season when grasses are usually a severe weed problem, then hand or mechanical weeding to remove the broadleaved weeds during the middle and latter parts of the growing season.

Within the last two years, several new herbicides have become available. These have broadened the spectrum of control in vegetable crops. A combination that has been used for several years on mineral-soil onions is Dacthal preemergence for annual grass control and Chloro IPC for smartweed control. Within the last two years, other choices have become available for controlling broadleaves in onions by using TOK or Tenoran.

Similar combinations of the very active grass herbicides, such as Treflan or Dacthal plus TOK or Tenoran, have provided sustained control in carrots and transplanted cabbage.

To have one broad-spectrum herbicide that would provide control throughout the season would be ideal. Lacking this, we must fit together the available herbicides in order to control the weeds not controlled by a single herbicide, in much the same manner that a jigsaw puzzle is assembled by the process of elimination. Thus, we eliminate the herbicides that are primarily active on the same weed species.

We also have had to combine herbicides in preemergence use in order to broaden the spectrum of control in cucurbits. Prefar, which is primarily active on grass, and the "old standby" Alanap provide a broadened control spectrum. Another example is the combination of Aatrex with Ramrod or Sutan, used to broaden the control spectrum and to reduce the Aatrex residue carryover.

For numerous other vegetable crops, researchers are trying to fit together the puzzle of prolonging and broadening control by the use of complementary herbicides. Also, an increasing number of new herbicides for early postemergence control are being developed by the herbicide manufacturers.

Where herbicides are not packaged and sold as a mixture, the grower should make sure that the mixture is not additive in its effect on the crop in which he wishes to control weeds. The Food and Drug Administration has ruled that the use of mixtures are the responsibility of the grower where there is no specific label for a specific crop use.

CURRENT VEGETABLE DISEASES IN ILLINOIS

Tomatoes

Early blight is very common now on unsprayed plants, and growers should be on a 7- to 10-day protective fungicide schedule using maneb, maneb and zinc ion (sold as Dithane M-45 or Manzate 200), Polyram, or the new Difolatan 4 Flowable. The last-named one has received a lot of publicity recently. It should perform for you as well as maneb for controlling leaf blights and anthracnose. It is a very fine-ground material that will stay in suspension almost indefinitely with little or no agitation, yet has good weathering properties. It has been formulated for use in both hydraulic and air-blast ground equipment, as well as from aircraft.

Five thorough fungicide sprays are usually sufficient to protect tomato foliage and fruit in a "dry" season. Six to eight sprays are necessary in a "wet" season. Whenever possible, applications should be timed for maximum deposit on the foliage and fruit just before rainy periods--the time when infections occur. Take extra care to see that the center of each plant and the undersides of the leaves are thoroughly covered with fungicide spray or dust.

Anthracnose or ripe rot infections commonly occur when the fruit is still green--yet the disease does not appear until near picking time, or even later. Fruit losses may be reduced up to 70 percent by spraying maneb, maneb and zinc ion, or Difolatan 4F over the entire soil surface after the last cultivation. Use 4 pounds of active fungicide per acre as a soil application. Anthracnose comes from fungus spores in the soil that are splashed up on the fruit during driving rains or periods of irrigation.

Wilt diseases (Fusarium and Verticillium) are common, and specimens are received almost daily. The Fusarium fungus has a higher growth optimum (77° to 95° F.) than Verticillium (70° to 75° F.), and is seen more in the southern half of the state. Verticillium is the more-common wilt in northern Illinois. The only practical control for both diseases is to grow resistant varieties. Many of our newer and better varieties have multiple wilt resistance. A switch in varieties is the answer where there has been a problem with one or both wilts--they often appear identical in the field. Two items in the series *Report on Plant Diseases* have been revised recently: No. 929, "Fusarium Wilt or Yellows of Tomato," and No. 950, "Verticillium Wilt of Eggplant, Tomatoes, Peppers, and Other Vegetables." Both contain an extensive listing of modern varieties suitable for growing in Illinois--ones resistant to or immune to common strains of the Fusarium and/or Verticillium wilt fungi. Tomato varieties are divided by season into early, midseason, and late; also, by use, into market garden, commercial processing, paste, and home garden. Copies of these two reports

may be obtained by writing to the Department of Plant Pathology, 218 Mumford Hall, University of Illinois, Urbana, Illinois 61801. Ask for the leaflets by their RPD number.

TOMATOES, PEPPERS, BEANS, AND CUCUMBERS

Bacterial blights (called bacterial spot, common bacterial blight, and angular leaf spot) are prevalent following warm, driving rains. The spots on the leaves and fruit are dark and watersoaked at first, but later dry out. Leaf infections often tear away. The best field control for these diseases is to apply a fixed copper fungicide at weekly intervals, using 2 to 3 pounds of metallic copper per acre. The copper may be combined with maneb or with maneb and zinc ion to give a broad spectrum of fungus control as well. Or, you can alternate weekly sprays of copper and maneb. If you combine the sprays, use 2 pounds of active ingredient of both copper and maneb. Kocide 101 is finely divided, fixed copper that has received much favorable publicity during the past couple of years. It can be applied equally well with ground equipment or from the air.

A practice that helps is to stay out of the fields when the foliage is wet. Brushing against wet foliage with a cultivator, or handling by pickers, may spread the causal bacteria as far as 100 plants down a row from one, infected plant.

SWEET CORN

Bacterial wilt or Stewart's disease was common early this year in southern Illinois. All sweet corn varieties are susceptible, up to about the second- or third-leaf stage. This is the critical time to protect against the corn flea beetle, with timely applications of a recommended insecticide. The beetles infect seedling corn plants when they feed.

Crazy top samples are now coming in. This disease appears as stunted, "crazy" plants; the tassel and/or ear shoots turn into plummy masses of leaves. Such corn is usually found in low wet areas where the soil was watersoaked sometime after seeding and the plants are in the three-leaf stage.

VINE CROPS

Anthracnose, Alternaria, Blossom blight, Scab, and Gummy stem blight or Black rot can be expected anytime, starting on the older leaves near the center of the hill. These fungus diseases are favored by warm rainy weather, heavy dews, and overhead sprinkling. The preferred fungicide to use after the vines start to run are maneb or maneb and zinc ion, at the rate of 2 to 3 pounds of active material per acre. The second choices would be zineb (3 pounds per acre) or Difolatan 4F (2.5 pints per 50 gallons per acre). For the spray or dust to be effective, it is necessary to cover the undersides of the leaves with each application. As you well know, this is not the easiest task in the world. Applications are needed at 5-day intervals in wet weather, but may be extended to as much as 10 days during hot, dry weather. The new growth of vines and fruit should be kept protected. Any of these fungicides may be combined with recommended insecticides in order to control insects on vine crops.

Bacterial wilt is most common on cucumber and muskmelon, although other vine crops may become infected. Watermelons and gourds are almost immune. The only practical control for this very destructive disease is strict control of both spotted and

striped cucumber beetles, as well as grasshoppers and squash bugs. All of these insects spread the disease as they feed. Complete coverage of all foliage parts by protective sprays or dusts of a recommended insecticide is essential. Applications should start as plants crack the soil before emergence, and then be continued through the growing season. Early-season applications are most critical.

VEGETABLE INSECT SITUATION

European corn borers can be found in the whorls and ears of sweet corn in the southern half of the state. Also, these larvae are tunnelling into tomato and pepper stalks. As of June 19 in southern Illinois, the small borers would soon start leaving the corn whorls as the tassels emerge. Eggs were still being deposited on corn north of a line from St. Louis almost up to Rock Island. The emergence of the moths was almost complete in northern Illinois, and egg-laying was just starting. Egg-laying by corn earworms was very heavy during the week of June 15-19 in the East St. Louis area.

H.J. Hopen and J.S. Vandemark
Extension Specialist of Vegetable Crops

M.C. Shurtleff
Extension Pathologist

Roscoe Randell
Extension Entomologist

Cooperative Extension Service
United States Department of Agriculture
University of Illinois
Urbana-Champaign Campus
Urbana, Illinois 61801



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ILLINOIS VEGETABLE FARMERS' LETTER
Letter No. 7

URBANA, ILLINOIS
July 8, 1970

CABBAGE LOOPER CONTROL IN NEW YORK

[The following is a summary of cabbage looper control tests by F.D. Judge and F.L. McEwen]

"Results from trials carried out in 1966 and 1968 suggest that until new pesticides are approved for use on cole crops, the cabbage looper can be controlled best if a weekly schedule of insecticide application is employed using either methomyl (Lan-nate) or a parathion-endosulfan (Thiodan) combination. However, experience of growers in western New York in 1968 indicated that the parathion-endosulfan combination did not provide adequate protection. Resistance to parathion has been reported from other areas and a high degree of tolerance to that pesticide was found in New York in 1968. While endosulfan (Thiodan) provided fair control of the cabbage looper in 1966 seasonal trials, its performance in the shotgun trials indicate that it is suspect in providing consistent control. Control with Thuricide has been less than dependable. With these reservations in mind it would appear that of materials available to the commercial grower, methomyl has the most potential for looper control. When they receive legislative sanction, it is hoped that the newer compounds which showed promise for looper control in these trials, Monitor, DuPont 1642, Fundal, VCS 506 (Abar) will provide a greater flexibility in choice of materials and lessen the number of applications needed for control of the cabbage looper in New York State."

CORN EARWORMS

The flights of these moths are greater than normal in the southern and central sections of the state. In the East St. Louis area and around Urbana, the moths collected in light traps are showing up earlier in the season and in greater numbers than normal.

The reasons for these differences in earworm activity are not clear at the present. Sweet corn, which will be tasseling in the next couple of weeks in central and northern Illinois, should be watched closely for egg-laying and worm-hatch.

With temperatures of over 90 degrees, the earworm egg can hatch in 40 to 48 hours. Also, if many eggs are being laid, it is very important to keep the fresh silks covered with an insecticide.

MARKET REPORTS OF INTEREST TO GROWERS

Fresh Fruit and Vegetable Market News (Trading Report), U.S. Department of Agriculture, Fruit and Vegetable Division (free).

Chicago--610 S. Canal Street, Room 1060, Chicago, Ill. 60607
St. Louis--208 N. Broadway, Room 1010 Federal Building, St. Louis, Mo. 63102
Kansas City--U.S. Court House, Room 120, 811 Grand Ave., Kansas City, Mo. 64106

IMPORTANCE OF COOLING VEGETABLES

Research has shown that the "shelf life" of fresh vegetables can be affected greatly by the temperature of the commodity after harvest. Vegetables are living tissues,

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even after harvest, and they need oxygen in order to remain alive. As the temperature increases, the respiration or "breathing rate" of the produce also goes up. Such conditions speed up the deterioration of the original quality. Certain commodities also have a higher normal respiration rate than others, and thus have a shorter life after harvest. Research indicates that cooling vegetables, particularly those with a high respiration rate, right after harvest will lengthen their shelf life and also provide better quality and greater consumer satisfaction.

USDA REPORTS ON SPRING FRESH VEGETABLES

The supplies of spring vegetables (excluding melons) totaling 37.3 million hundredweight, are 1 percent less than last year and 4 percent below the 1968 level.

Cabbage. The late-spring cabbage crop is estimated at 0.7 million hundredweight--11 percent less than 1969; the early summer crop, at 1 hundredweight--1 percent below last year.

Carrots. California's early summer production is expected to be 2.9 million hundredweight.

Celery. The Florida and California production of spring celery is estimated at 3.4 million hundredweight--4 percent below 1969. The early summer crop of celery is forecast at 1.5 million hundredweight--5 percent below 1969.

Sweet corn. The 3.6 million hundredweight production figure for spring sweet corn is 4 percent below last year. The early summer sweet corn crop is estimated at 2 million hundredweight--2 percent less than 1969.

Onions. The late-spring production of 2.7 million hundredweight is 11 percent above that of 1969. The early summer crop forecast is for 2.6 million hundredweight--13 percent below the 1969 level.

Tomatoes. Spring tomato production, totaling 3.9 million hundredweight, is 13 percent less than last year. The early summer tomato production is forecast at 5.7 million hundredweight--4 percent above the 1969 crop.

Cantaloup. Spring cantaloup production is estimated at 3.6 million hundredweight--25 percent below 1969.

Watermelons. Late-spring watermelon production is pegged at 7.1 million hundredweight--11 percent less than in 1969. The early summer crop is estimated at 16.3 million hundredweight--3 percent more than the 1969 figure.

H.J. Hopen & J.S. Vandemark
Vegetable Crop Extension Specialists

Roscoe Randell
Extension Specialist in Entomology

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